CLAIMS

What is claimed is:

1.   A recording medium, comprising:

a data area to store user data;

a primary spare area allocated upon initialization of the recording medium; and

a supplementary spare area, allocatable and/or expandable after the initialization, to act as a supplemental spare area for the primary spare area for defect management of user data;

wherein the supplementary spare area is allocated in a forward direction starting from a rear portion of a data area.

2.   The recording medium of claim 1, wherein the allocation of the supplementary spare area includes a rearranging of a plurality of non-continuous areas of the recording medium to generate a new continuous empty area at the end of the data area if a sufficiently continuous empty area at the end of the user data area does not exist.